

CLAIMS

We claim:

5     1. A method for providing updated system locality information (SLI) during runtime comprising:

      collecting system locality information at boot time to be provided to an operating system, said system locality information describing distances between devices within an integrated processing system;

10       notifying the operating system that a triggering event has occurred, wherein said triggering event potentially alters said system locality information; and

      providing updated system locality information during runtime to said operating system upon a request from said operating system, said updated system locality information reflecting distances between devices within said integrated processing system after the occurrence of the triggering event.

2. The method of claim 1 further comprising:

20       creating a system locality information table (SLIT), wherein said SLIT is populated with device distances collected at boot time.

3. The method of claim 2 wherein said notification of said operating system of said addition causes said operating system to invoke a process for updating said SLIT.

25       4. The method of claim 3 wherein data for said update of said SLIT is provided to said operating system upon an invocation of an Advanced Configuration and Power Interface (ACPI) object.

5. The method of claim 4 wherein said ACPI object is \_SLI.

6. The method of claim 1 wherein said triggering event is based  
5 on an online addition of a device.

7. The method of claim 6 wherein said notification of said online  
addition is through a Bus Check notification.

10 8. The method of claim 1 wherein the triggering event is based on an  
online deletion of a processor device.

9. The method of claim 8 wherein said notification of said online  
deletion is through an Eject Request notification.

15 10. The method of claim 1 wherein the triggering event is based on an  
online reconfiguration of said integrated processing system, wherein  
said online reconfiguration affects distances between devices within  
said integrated processing system.

20 11. The method of claim 10 wherein said notification of said online  
reconfiguration is via a device that affected said distances.

25 12. The method of claim 11 wherein said notification of said online  
reconfiguration uses an ACPI object.

13. The method of claim 12 wherein said object is SLI Update.

14. The method of claim 3 wherein said update of said SLIT is by recreating a new table.

15. The method of claim 3 wherein said update of said SLIT is by  
5 augmenting and populating augmented cells with new system locality information.

16. The method of claim 3 wherein said update of said SLIT is by reducing and populating said SLIT with new system locality information.

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17. The method of claim 3 wherein said update of said SLIT is by updating existing cells within said SLIT with new system locality information.

15 18. A computer program embodied on a computer readable medium for providing dynamically updated system locality information, the computer program causing a computer to perform the steps of:

creating a system locality information table, said system locality information table being populated with boot time system locality  
20 information, wherein said system locality information describes distances between devices within an integrated processing system; and updating said system locality information table upon receipt of a notification that a triggering event has occurred, wherein said triggering event may potentially alter said distances between devices  
25 within said integrated processing system.

19. The computer program of claim 18 wherein said computer program further causes said computer to:

invoke a bus check notification upon an online addition of a device, wherein said bus check notification indicates to said operating system that a re-enumeration of a device tree needs to be performed, and wherein said operating system invokes a \_SLI procedure that

5 returns updated system locality information resulting from said online addition;

invoke an Eject Request notification upon an online deletion of a device, wherein said Eject Request notification indicates to said operating system that a re-enumeration of a device tree needs to be

10 performed, and wherein said operating system invokes a \_SLI procedure that returns updated system locality information resulting from said online deletion; and

invoke an SLI Update notification upon an online reconfiguration of said integrated processing system, wherein said SLI Update

15 notification indicates to said operating system that a re-enumeration of a device tree needs to be performed, and wherein said operating system invokes a \_SLI procedure associated with a device sending said SLI Update notification that returns updated system locality information resulting from said online reconfiguration.

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20. An apparatus for updating system locality information comprising:

a system locality information table (SLIT) creator for creating a SLIT coupled to an operating system, said SLIT being populated with boot time system locality information, wherein said system locality

25 information describes distances between devices within an integrated processing system;

a triggering event detector coupled to said operating system, said triggering event detector capable of detecting an occurrence of a triggering event, where said triggering event may potentially alter said

distances between devices within said integrated processing system;

and

a SLIT updatator coupled to said operating system and further coupled to said triggering event detector, wherein, upon a receipt of a  
5 notification of an occurrence of a triggering event from said triggering event detector, said SLIT updatator provides updated system locality information to said operating system based on said altered distances between devices of said integrated processing system.